A New Green Building Challenge for California

Exploring CALGreen

Introduction

The California building industry has a new challenge this year. All new building projects must incorporate sustainable design and construction requirements to meet the new California Green Building Code (CALGreen).

As of January 1st, 2011, the State of California Building Standards Commission incorporated CALGreen (the California Green Building Code) into the Title 24 California Building Standards Code. CALGreen is a set of mandatory and voluntary code provisions focusing on green building concepts. All new construction projects, major addition projects, and the first tenant improvement in a new construction project applying for a building permit must meet the CALGreen statewide mandatory requirements. In the case of addition projects, only components considered to be new construction shall apply. CALGreen also contains additional voluntary elements that can be adopted by a local jurisdiction for enforcement within that jurisdiction.

Background

The development of the CALGreen code is a response to Governor Schwarzenegger’s request of the Building Standards Commission to collaborate with state agencies to develop a green building standard for California. As a result, the Department of Housing and Community Development, the Division of State Architect, the Office of the State Fire Marshal, the Office of Statewide Health Planning and Development, the California Energy Commission, and the Building Standards Commission all worked together to establish the code. In addition to these agencies, several volunteers assisted with the development of the code.

The California Building Standards Commission first established the 2008 CALGreen Code as a voluntary standard, unless deemed mandatory by a local jurisdiction. The voluntary time period was developed to allow local jurisdictions to prepare for enforcement. The 2010 CALGreen Code was released in June of 2010 and went into effect on January 1st 2011. The Building Standards Commission developed a guide to CALGreen to assist in the interpretation of the CALGreen Code. For each CALGreen section, the guide contains the provisions intent, laws or regulations, compliance method, and enforcement for each CALGreen section.

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CalGreen: Something New, Something Old, and Something Borrowed

Reduction of environmental impact is the common feature amongst the CALGreen provisions. Many of the CALGreen requirements are new to the building code and are comparable to those found in common green building rating systems, such as the LEED Rating System or the CHPS Criteria. Examples of these similarities include the reduction in water use from plumbing fixtures, building system commissioning, and low-emitting material requirements.

Some provisions found in the CALGreen code, however, are simply reiterations of requirements found in other parts of the building code that have some environmental benefit. The weather protection requirements found in CALGreen Section 5.407.1, for example, require a weather resistant exterior compliant with California Building Code Section 1403.2 (Weather Protection) and California Energy Code Section 150 (Mandatory Features and Devices).

Some provisions are new regulations for existing state laws not formerly enforced and outside of the building code. The space allocation requirements for recycling, for example, are taken from the California Solid Waste Reuse and Recycling Access Act of 1991.

CalGreen Code Requirements

*Mandatory and Voluntary Requirements*

The CALGreen residential and non-residential code is located in Part 11 of the California Building Code. The CALGreen code is composed of eight chapters with two appendices, as shown in the CALGreen Code Structure list above. The mandatory requirements are located in chapters four and five. The voluntary requirements are structured under a two-tiered system to enable local jurisdictions to adopt higher levels of environmental performance requirements, if desired. The voluntary requirements, under Tiers 1 and 2, are listed in the form of a checklist in the appendix.

*Administration, Definitions, and Green Building*

Chapters 1-3 and 6 provide instruction and supporting information on overall code issues. These sections introduce the environmental categories that apply to the provisions within:

- Planning and design
- Energy efficiency
- Water efficiency and conservation
- Material conservation and resource efficiency
- Environmental quality

The mandatory measures established in Chapters 4 and 5 and the voluntary requirements in the appendix are organized using these categories.

Chapter 1, Administration: The most important element of Chapter 1 addresses the specific requirements developed for different regulating agencies, such as the Division of the State Architect (covering schools and other buildings) and the Office of Statewide Health Planning and Development (covering health care facilities). At the beginning of each chapter containing technical measures, a “Matrix Adoption Table” is provided as a reference showing which agencies have adopted specific provisions within that chapter. For most buildings not under the jurisdiction of a specialized state agency, the CALGreen components adopted by the Building Standards Commission (BSC) will apply to the project.

Chapter 3, “Green Building”, provides requirements for mixed occu-
pency types and phased projects. Energy performance for Tiers 1 and 2 are established. Tier 1 projects must meet the “Savings By Design, Healthcare Modeling Procedures” and Tier 2 must exceed the same procedures by fifteen percent.

Chapter 6, “Referenced Standards”, contains the names and a list of standards that are referenced within the code.

Residential and Nonresidential Mandatory Measures

Chapters 4 and 5 contain the mandatory measures organized into five environmental categories: 1) Planning and design, 2) Energy efficiency, 3) Water efficiency and conservation, 4) Material conservation and resource efficiency, and 5) Environmental quality.

The emphasis on water savings is evident in both the residential and non-residential requirements. Projects must comply with reduced water use for indoor and outdoor applications. For indoor water, plumbing fixtures and fittings must reach a twenty percent savings using the California Energy Commission Appliance Efficiency Standards, Title 20, California Code of Regulations, as a baseline. The code provides a water-use worksheet to determine percent savings. For outdoor water use, residential and non-residential projects must install automatic irrigation controllers for landscaping that are capable of being adjusted based on the weather conditions.

Commissioning is a significant addition to the code provisions for non-residential projects. The requirements are similar to those found in the LEED Rating System. However, the commissioning authority is not required to be a third-party as with many other green building rating systems.

Compliance Forms and Worksheets

CALGreen contains forms and worksheets in Chapter 8 to show compliance with the code. The CALGreen Guide has incorporated both the forms provided in the code and additional forms for compliance with other measures. The forms and worksheets are intended to be completed at two stages of the project. During the permitting phase and occupancy phase, the guide suggests that local jurisdictions require documents as shown in the forms and worksheets list here.

Local Adoption

A regulating agency may choose to develop and adopt more restrictive standards for the purposes of addressing local climatic, geological or topographical conditions. In addition, renovations and additions are not included in the code as written. However, cities such as Los Angeles and San Francisco have opted to apply the requirements to existing building renovation projects.

LEED Projects

Projects pursuing LEED Certification as part of their overall project goal will see some overlap in the LEED requirements and CALGreen Provisions. The compli-
California utilities offer outstanding educational opportunities that focus on the design, construction and operation of energy-efficient buildings. Listed here are a few of the many upcoming classes and events; for complete schedules, visit each utility's website.

**Planning a Zero Energy New or Existing Home in California**

The concept of a net Zero Energy Home (ZEH) is to reduce electrical loads to the point that the home's photovoltaic system annually supplies as much electricity to the utility grid as the home uses. Not only does it require a clear understanding of the climate, building enclosure, and internal loads, but the house must also be monitored upon completion to evaluate its actual performance.

July 19 (Tuesday, 9:00 am to 4:30 pm) San Jose--Pipe Trades

July 21 (Thursday, 9:00 am to 4:30 pm) Upper Lack--the Lodge at Blue Lakes

http://www.energydesignresources.com/training/upcoming-events/pge/q2-2011/4821.aspx

**Sustainable Building Envelopes**

Designers, architects, and others will learn about the integrated design process and explore passive building measures for high performance green buildings. Topics such as building orientation considerations, high performance glass, advanced wall systems, cool roofing, and building integrated photovoltaic (BIPV) systems will be discussed.

July 26 (Tuesday, 8:30 am - 12:30 pm) Energy Education Center--Irwindale

http://www.sce.com/b-sb/energy-centers/workshops-classes.htm